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ABSTRACT

This document contains four papers from a symposium on motivation to learn and perform in the workplace. "Getting It Together: Motivations and Success Characteristics for Interorganizational Collaborations" (Mary Wilson Callahan) presents results of a literature review, a hierarchical framework of motivations for interorganizational collaboration, and examples of application of the model in large and small companies. "Deterrents to Participation in Women Only Learning Events: A Case Study" (Kimberly S. McDonald, Linda M. Hite) reports that lack of departmental support in terms of time off to attend and financial assistance were the two major deterrents. "Learning Climate and the Structure of Work" (Mirjam A.A.H. van Moorsel) explores the relationship between learning climate and the structure of work and finds that the team-based department has a more favorable learning climate than the task-structured department. "Factors Affecting Motivation to Use Computer-Based Training" (Dian L. Seyler, Elwood F. Horton III, Manuel A. Carvalho, Reid A. Bates) reports a study to examine the relationship of five groups of variables with motivation to transfer skills and knowledge learned in a computer-based training program that found that individual attitudes and environmental variables explained most of the variance in motivation. (YLB)

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28 **Motivation to Learn and Perform**

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Getting it Together: Motivations and Success Characteristics for Interorganizational Collaborations
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Deterrents to Participation in Women Only Learning Events: A Case Study
Kimberly S. McDonald, Indiana-Purdue University Fort Wayne
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Learning Climate and the Structure of Work
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Factors Affecting Motivation to Use Computer-Based Training
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Getting It Together: Motivations and Success Characteristics for Interorganizational Collaborations

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In an interorganizational collaboration, autonomous groups take action toward mutual objectives according to shared rules and resources. Such work is often critical to the members, yet they often do not share, or even fully understand their motivations. To promote clarity in this area, this article presents the results of a literature review study, a hierarchical framework of motivations for interorganizational collaboration, and several examples of application of the model in large and small companies.

Collaboration among groups is not a new phenomenon. However, in our intensively competitive and specialized world, and aided by modern transportation and communications technology, interorganizational collaboration is becoming not only more common but also critical to the viability of many business, academic, community, and governmental organizations. Given the ubiquity and the growth of this organizational "life form," it is important to integrate and extend what is known about it, drawing from both scholarly theory and participant experience.

The purpose of this literature review study was to delineate the motivations that lead organizations to form collaborations and to identify the characteristics that typify successful collaborations. The specific questions pursued were: What reasons do researchers report that groups demonstrate when entering into collaborative arrangements? What trade-offs do they weigh? What safeguards do they require to insure their continued individual identity?

Methodology

The research questions were addressed through a literature review, comprising both theoretical and case study data spanning various disciplines. The study of interorganizational collaboration and the still small body of qualitative research in the field as well as books that center on emerging boundary-crossing forms of organization were included. The findings from the literature review led to the creation of the model -- Hierarchy of Motivations to Collaborate" (Figure 1).

Importance of the Model The model is of use to organizations, and particularly to their leadership, in several ways. The first has to do with the need for collaborating organizations to maximize both self-understanding and mutual understanding of their motivations. All members of the collaboration may not be on the same level of the motivational hierarchy, but they must understand "what is in it" for all concerned. Strategically, the success of the collaboration will be measured in terms of its joint objectives, as well as the objectives of the constituents. Motivations are a vital element of these objectives. Operationally, action planning and expectation setting will occur in the context of the reasons for the collaboration; the reasons will provide the focus. For example, if organizations collaborate to heighten their legitimacy (social and/or political status), their actions will be significantly different than if their motivation was secure access to resources.

A further justification for the model involves the intense real-time learning that typically accompanies the initiation, conduct, and evaluation of interorganizational collaboration. The great majority of writing and training, both formal and informal, about how to build, manage, and work in organizations is focused on organizations in the traditional (self-contained and

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stable) sense. Therefore, collaborating organizations need to unlearn and learn anew as they break new ground. Effective learning occurs in the context of purpose. Again, motivations and needs are a key part of the purpose that will give meaning to the learning experience.

Finally, the scholarship of interorganizational collaboration is young. The literature reviewed for this paper represents a good portion of what exists, and it did not include a comprehensive model of motivations, such as this paper presents. Discussions with both academic and business colleagues revealed a keen interest in these ideas. For scholars, the framework helps organize the rest of the literature. For business people, the framework helps clarify their decisions about whether, why, and how to collaborate with other organizations.

Theoretical Underpinnings The theoretical basis for the model presented in this paper is the same as that cited in Gray and Wood's literature review (1991a, 1991b). These perspectives and the authors associated with each are

Resource Dependence Theory	Logsdon
Corporate Social Performance Theory/Institutional Economics Theory	Pasquero
Strategic Management Theory/Social Ecology Theory	Westley and Vredenburg; Selsky
Microeconomics Theory	Fleisher
Institutional Theory/Negotiated Order Theory	Nathan and Mitroff; Sharfman, Gray, and Yan
Political Theory	Golich; Roberts and Bradley

Gray and Wood were concerned with the explanatory power of each of these perspectives, at both the organizational and domain levels, in treating three issues of collaboration: preconditions, process, and outcomes. Impressive as their review is, the authors do not deal with the issue of motivations for interorganizational collaboration, nor with the dimension of expanding horizons (in terms of time frame and social benefit) as presented in the model, Hierarchy of Motivations to Collaborate. The case for such a model became clear in the sampling of some of the literature which Gray and Wood reviewed, and it strengthened as other sources (as listed in the reference section of the original proposal) were added and the viewpoints of business leaders whose success largely depends on successful interorganizational collaboration were also considered.

Testing the Model The framework derived from the literature review was tested through analysis of four cases interorganizational collaboration. Key participants were interviewed regarding their motivations for forming the collaboration, their initial and revised expectations, and organizational critical success factors, as experienced or anticipated.

Results and Conclusions

The definition of collaboration has been honed in recent years to be made more comprehensive and precise. After surveying a number of writers, Gray (Gray and Wood, 1991b) proposed the following update to her own earlier landmark definition:

> Collaboration occurs when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structures, to act or decide on issues related to that domain. (p.146)

Gray's definition is intended to be encompassing and rigorous, and to apply equally well in discussions informed by the six major theoretical perspectives of collaboration researchers, which are

- resource dependence theory
- corporate social performance theory/institutional economics theory
- strategic management theory/social ecology theory
- microeconomics theory
- institutional theory/negotiated order theory
- political theory

Looking across both cases of and the literature on interorganizational collaboration, an interestingly "Maslovian" hierarchy was evident in the motivations driving organizations to join in collaboration with others. Figure 1 below shows the levels of motivation as a succession of increasingly higher needs. In this context, "higher" implies a concern for both longer range and more encompassing benefits. Additional levels may yet be identified.

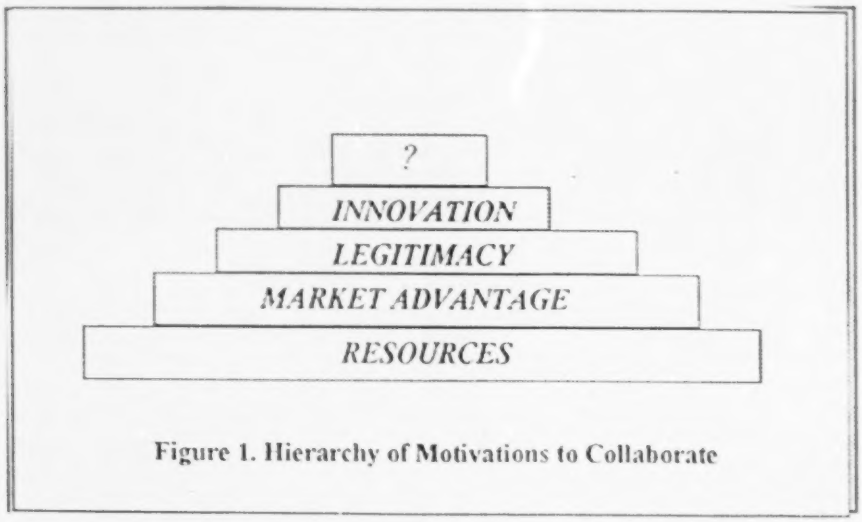

Figure 1. Hierarchy of Motivations to Collaborate

Resources At the most basic level are motives relating to the acquisition of or access to resources, including material inputs, distribution or logistical capabilities, financial resources, and manpower. This form of collaboration can be viewed as a more interdependent and open-ended version of conventional supplier relationships, i.e., relationships wherein the parties work together beyond the terms of specific purchase orders or contracts. Rather, as collaborators they are likely to share strategic information as well as strategic investment. Thereafter, they will approach future opportunities to grow and be more profitable together.

There are examples among both old and new companies. A case in point is General Motors, which "In 1971, ...made its 34 percent strategic investment, ...cemented relationships with Japan's Isuzu Motors, gained access to a needed component, and gained entry to a new market." (Lipnack and Stamps, 1993, p.125). Nike took a different tack, becoming a core

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distribution firm surrounded by product-producing collaborators. "It based its strategy on close relations with – but not dominance of – manufacturers in the resurgent East [Asia]" (Lipnack and Stamps, 1993, p.121).

Market Advantage Whereas reliable access to resources and customers helps a company thrive in the business it is already in, collaboration for market advantage allows the partners to enter new markets and perhaps even create new market segments. This level of collaboration can take the form of joint research and development, where the collaboration may involve many or all of the major players in an industry as well as governmental entities. The partners work together to build a more advanced platform of knowledge and capabilities. That platform is then the basis for a new stratum of competitive activity among the players.

As an example, Helgesen (1995) recounts how Nickelodeon, a small, informal team of innovative programmers, and MTV Networks, a giant TV production and distribution company, learned to work together, despite wide cultural differences, to create a new approach to non-cartoon, "kid-friendly" entertainment, moving beyond television to theme parks, magazines, and other product types.

Legitimacy A motivational level higher is the quest for legitimacy, or, put more simply, enhanced social and/or political status. Most organizations have multiple reasons for seeking collaborative arrangements, and the search for increased status or legitimacy, a valuable intangible asset, is often near or at the top of the list. Indeed, Oliver (1991) suggests that organizations may be willing to relinquish some measure of autonomy – specifically their power to make decisions regarding the use of information and commitment of resources -- in order to gain legitimacy, especially when there are reciprocal guarantees and equal benefits.

Two very interesting examples of this phenomenon were identified in the literature. Sharfman, Gray, and Yan (1991) reported the efforts of executives of the garment industry to deal with a critical effect of the poor reputation of the industry – extremely rapid employee turnover. A charismatic individual forged a training program which brought together company management, a regional industry council, and a well-regarded vocational school. Together, the collaborators were able to obtain a year's funding from state economic development sources.

The pilot phase was deemed successful on several counts. Most directly, the immediate pressure of rapid employee turnover abated. In addition, participating groups began to exchange information and consultation beyond the scope of the training program. The pilot also was a model to others in the community, and at least two similar groups were launched.

However, the original garment industry effort was stymied principally by a factor embedded in the wider system. To obtain longer term funding from federal sources, the project would have had to attract trainees from different and unfamiliar sectors, including current welfare recipients and the chronically unemployed, who typically are daunted by economic disincentives against giving up relative security for an unknown.

The second example involves collaboration by "strategic bridging" (Westley and Vredenburg, 1991) whereby an environmental advocacy group attempted to achieve several ends at once. By "branding" certain household items as environmentally friendly, the program intended to confer a mantle of goodness on the manufacturer of the products, while at the same time raising money for the advocacy group and providing the public with products that were less damaging to the earth.

Innovation The highest identified level of interorganizational collaboration could be called "innovation" or "future-building." In the last few decades, the organized world has been a veritable laboratory of organizational forms. Partnerships of varying purpose, extent, complexity, and formality are being tried on for size or, more accurately, for effectiveness. The books by Helgesen (1995) and Lipnack and Stamps (1993, 1994) are full of stories of community organizations, geographic regions, and emerging industries as well as individual companies and agencies, all of which are recognizing that *innovative organizational form* is their most strategic frontier.

Consciously or unconsciously, all organizations exist in an "Interorganizational Field," the theoretical underpinning of negotiated order theory (Nathan and Mitroff, 1991). The elements within the overall interorganizational (IO) field include: focal organization; organization set; industry; action set; and networks. When a group recognizes that it participates in the IO field, it can make best use of its choices, comparative strengths, and mutual expectations with other members of the field. The IO field can range in potential effectiveness from "fragmented" to "high quality," the latter being more readily able to deal with crisis. Nathan and Mitroff (1991) report a case which involved the response of an IO field (which included members of the food industry, the government, and the media) to a product-tampering crisis. The crisis required the members to explicitly recognize and value their membership in the IO field, and to understand better how improving their relationships could improve crisis management, both currently and in the future.

Characteristics Of Successful Collaboration

Across the literature reviewed, numerous characteristics of successful collaboration were identified. The following set are the most important, based on their virtual universality among the sources reviewed as well as on how strongly they impact the effectiveness of the collectivity under review.

Shared Purpose In a true collaboration, a sense of shared purpose goes well beyond mutual back-rubbing. A shared purpose exists when all parties can articulate their aspirations for the collaboration, which is greater than their individual purposes and which applies in total to all of them. Leadership and strategy for the collaboration emerge from shared purpose (Lipnack and Stamps, 1993, 1994; Helgesen, 1995; Gray and Wood, 1991a).

Member Representation The members of a successful collaboration are themselves intact, autonomous groups. Each member group must have sufficient internal cohesion (effectively, DNA coding) so that its participation in the collaboration truly reflects the values and objectives of the whole group. An individual from one member group can operate on his own only for a limited period of time (Westley and Vredenburg, 1991). Soon, it must be demonstrated that others in the member group are willing to be active in the collaboration as well. Otherwise, the collaboration will founder, and the member group may either disband or eject the wandering member (Sharfman et al, 1991).

Equity All parties must feel that they are equally invested in the relationship and will benefit equally. "Equally" could equate to "proportionally," when the parties are of significantly different size, wealth, segment, and/or risk level (Westley and Vredenberg, 1991). It is also critical that enforcement of the terms of the collaboration be seen to be equitable (Nathan and Mitroff, 1991).

Communication This is linked to the "autonomy" issue discussed above. Communication includes both the mechanisms and the willingness to share information about goals, problems, resource requirements, status, opportunities, and the like (Lipack and Stamps, 1993, 1994; Helgesen, 1995).

Flexibility A collaboration is a complex organizational arrangement, subject to many internal and external pressures. A member group may belong to several simultaneously. Furthermore, collaborators may also be competitors. The need to balance all this complexity requires all participants to be both flexible and realistic in their expectations of each other. Because they are going through a group development life cycle, they should expect to "grow into" their relationship, and they should periodically test their progress and correct their course (Lipnack and Stamps, 1993, 1994; Helgesen, 1995, Gray and Wood, 1991a, 1991b).

Member Integrity Each group comprising the collaboration must maintain its separate identity along with the willingness to face and resolve the conflicts that will inevitably arise. Lipnack and Stamps (1993) coined the term "groupthink" (p. 300) to characterize the dangers of

allowing the momentum of the larger group to overwhelm smaller group requirements. Wheelan and Karsick (1993) allude to this phenomenon in their assertion that it is inevitable (bordering on mystical) that group components will come to mirror characteristics of the overall group to which they belong, even if it is only a temporary arrangement. This was an outcome of their study of the adoption of themes (topics and beliefs about these topics) that emerged in the breakout groups at an annual conference in which they found a significant similarity across the breakout groups that could not be explained entirely by intergroup discussion or leadership impact. Wheelan and Karsick concluded that the system takes on a personality of its own, and "When individuals choose to speak in a social system, they may not be speaking for themselves. Rather, the system may be speaking through them." (p. 256)

Testing the Model

The model of the hierarchy of motivations for interorganizational collaboration emerged from a literature review study, and it accounts for many of the experiences and differences reported by a variety of researchers. To further test its applicability and usefulness to organizations involved in or contemplating such engagements, a small number of interviews were conducted, following a brief description of the model and its source.

Media4 Media4 is a start-up company in Atlanta which develops technology for the distribution of multimedia information to personal computers over satellite and wireless networks. The three-year-old company is committed to remaining small and flexible. According to Jim Stratigos, company president, this is both a good business strategy and a personal preference of the founders, who came from large, bureaucratic corporations. Thus, interorganizational collaboration is key to their ability to access capabilities they do not possess internally.

Media4 has built a relationship with a strategic supplier (Supplier 1) to whom they outsource software development of a component (some or all of the network management function) of their product, which Media4 does not consider part of its core competency. They felt that what they gained in time, flexibility, and freedom from having to hire/train employees to do the work outweighed any risk in quality or confidentiality. In addition, risks are contained by several means, including

- Supplier 1 is local, and people from the two companies can meet or talk informally as much as necessary
- Supplier 1 is not a competitor
- The acquaintance was made via a mutual trusted friend
- They each refer their customers to the other, when appropriate, so that their fortunes tend to be intertwined

At this point, Media4's relationship with Supplier 1 is a felicitous vendor-supplier relationship, but not quite an interorganizational collaboration.

Some of the hardware included in Media4's total product is licensed from another company (Supplier 2). Within this segment of the hardware market, Supplier 2 has a virtual monopoly, by capturing "mindshare", i.e., by having entered the market first and established the standard. However, the component that Media4 acquires from Supplier 2 is not in Supplier 2's mainstream. Media4's anticipated success and the resulting growth in demand for their product is likely to noticeably change Supplier 2's earlier plans, leading to a development path influenced by their informal alliance. Therefore, this collaboration belongs on the first level of the interorganizational collaboration motivation pyramid – the *resources* level.

As he spoke of his company's future, the founder/president's language was remarkably in tune with the highest level of the pyramid -- *innovation/future building*. He is confident that

his venture will be successful (as was an earlier venture, now a major line of business for a telecommunications giant), but he is "bound and determined to keep it small." To accomplish this, he envisions Media4 becoming the spawning ground for a confederation of small companies. Each will have less than 300 employees, and each will be focused on a defined market need and fully capable of delivering the solution. At the confederation level, they might share certain support and professional services and/or facilities for offices and research and development, but each company would be free to partner or not, as best served its own and its clients' interests.

Synchrologic, Inc. Another young company located with Media4 in the Georgia Center for Advanced Telecommunications Technology (GCATT) business incubator in Atlanta is Synchrologic, Inc., which offers software specifically optimized to reconcile sales-related databases across computer networks. The very existence of the company is due in part to a three-way interorganizational collaboration between the company's founders, the Georgia Research Alliance (GRA), and the College of Computing at the Georgia Institute of Technology (Georgia Tech). The critical value gained by this arrangement is *legitimacy* for Synchrologic, i.e., it was able to get funding for equipment and a location at GCATT because of its association with Georgia Tech and the GRA. In additional, there is mutual benefit, currently at the *resources* level between Synchrologic and the College of Computing. Synchrologic provides access to a well-furnished laboratory to Ph.D. candidates, which the latter tailor their research agendas to support Synchrologic's long-term product development plans. Both parties also recognize the high quality of their frequent informal interaction. As new business opportunities result, the collaboration may also come to reside on the *market advantage* level of the hierarchy of motivations.

Cross-functional Task Force as Interorganizational Collaboration At a multinational telecommunications corporation, five regional offices needed to implement a new computer-driven system. The benefits were obvious at corporate headquarters, but the lives of line people were to be complicated with no benefit apparent to them. To foster the necessary cooperation, a cross-functional, multi-level task force, led by a facilitator from headquarters, was formed to plan and implement conversion from the old to the new system. The team, consisting of clerks, supervisors, and managers, and representing operations, information systems, and other functions, dealt with the three generic issues of change: resistance, power and politics, and managing the transition. They determined the details of the formal change, the informal change, and stakeholder interests. Their plan included both transition tasks and a full program of information and communication to all individuals impacted by the change. In the end, the project was completed early, even though there was a strike at the site during that period. Their work inspired the whole office, and it facilitated the roll-out of the new system to other sites.

In fact, the product of this task force's work – as it must be with every successful task force -- was trust. Unlike a committee, wherein the members maintain their allegiance to the organizations they come from and are constrained to insure that those interests win as much as possible, a task force must create an identity of its own. In the context of a successful task force, discussions and outcomes are enhanced by the interplay of different points of view brought in by members from different organizations. Members are able to speak truthfully and non-judgmentally about their motivations and concerns. They focus on real needs and actions to be taken, not hiding behind politics and code language.

Because of their leadership and their processes, this interorganizational collaboration achieved *legitimacy* for its participants. If they had stayed intact and proceeded to further objectives, they might have moved on to the *innovation/future building* level.

Summary

The combined influence of political, economic, social, and technology forces which typifies our time – which has been labeled The Post-Industrial Age and The Information Age, and a host of less well-known epithets – has quickened and increased the formation of collaborative organizations in all aspects of society. Member groups display a variety of motivations for joining into collaborative arrangements, which range from the traditional need for reliable access to critical resources, to the desire for enhanced legitimacy and new markets, to the expression of truly innovative organizational vision.

It is useful to apply group development theory and understanding to collaborations. As collections whose components are not individual people but intact groups, they are subject to the same stage-specific developmental tasks and critical success factors that pertain to all organizations. Additional observation and theory-building is underway to understand the particular features of inter-organizational collaborations. Newer organizational forms, such as the Web of Inclusion (Helgesen, 1995) and the TeamNet (Lipnack and Stamps, 1994), are discussed in current literature, and these will undoubtedly be joined by others in the years ahead.

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Deterrents to Participation in Women Only Learning Events: A Case Study

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This case study was conducted to determine what factors might deter women in male dominated organizations from participating in single sex training programs. Previous research on single sex training and on deterrents to participation in educational activities served as background for this survey of those who declined to participate in a women in emergency services conference. The resulting quantitative and qualitative data are discussed with recommendations for further study.

The issue of whether special training programs should be created just for women has been debated for several years (see for instance, Lam, 1990; Lewis & Fagenson, 1995; Reavley, 1989). Proponents of single-sex training cite the supportive climate and networking opportunities as important reasons for this type of training (Lam, 1990). However, some believe single-sex learning events have outlived their usefulness. Segregating the sexes may result in women feeling more isolated in their organizations and invite suggestions that, unlike their male colleagues, they have deficits in key areas. A study conducted by Reavley & Naughton (1993) found that a female candidate with gender-specific training on her resume received less favorable ratings regarding the decision to interview and hire than either a male candidate or a female candidate without such training. Lewis & Fagenson (1995) provide this summary of the arguments for and against single-sex training:

> . . . women-only management training programmes have made significant contributions towards the objective of increased skills. However, the contributions these programmes have made to the objectives of reducing prejudice towards women and increasing the number of women advancing into and being promoted through the ranks of management have been less substantial. Thus, they may not be the ideal strategy to further the development of women in organizations (p. 42).

Still others suggest that the choice to engage in and sponsor single-sex training is situational and that factors such as participant experience level and training subject matter may need to be considered (Lam, 1990). Regardless of one's position regarding the viability of single-sex training, the reality is that such training still occurs. Commercial training suppliers (for example SkillPath®, Pryor Resources, and American Management Association) still offer female designated training on topics such as communication and image, stress management, and assertiveness.

Research Question

The purpose of this study is to describe a case where an attempt to provide a single-sex learning event failed due to lack of participant response, and a systematic effort was made to determine why members of the targeted group chose not to attend. While the literature provides information regarding the advantages and disadvantages of female-only training, it offers little insight regarding why women choose to attend or not to attend these types of programs. Are there organizational culture issues that influence their decisions? Are situational deterrents such as time and cost major factors influencing participation?

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Methodology -- Background Information on the Case

A conference for women employed in emergency services was planned for April 1996 in a mid-size Midwestern city. Potential participants for this conference included female police officers, firefighters, emergency medical technicians, correction officers, and dispatchers. The majority of emergency services fields remain male dominated, despite the integration of women into most other occupations in U.S. society (Floren, 1991; Jurik, 1985; Martin, 1990). The combination of high male to female ratios with occupations that traditionally have been characterized by physical and mental toughness yields organizational cultures that may require difficult adjustments for women. As a consequence, there is a perceived need for women in these fields to develop support networks with one another (Martin, 1990).

We became involved with this conference when one of the members of the planning committee asked us to present one of the concurrent sessions. The conference planners (a committee composed of local women in emergency service occupations) invested a significant amount of time and energy in the conference -- scheduling seminars for the three day event, negotiating meeting room arrangements, securing corporate sponsors for door prizes, and making travel and lodging arrangements for speakers. These efforts were in addition to their regular job responsibilities.

Registration forms and brochures which described the contents of the conference were mailed to women in emergency service positions in the Midwest. However, by the beginning of April, only 15-20 registrations for the event had been received, and a decision was made to cancel. To gain background for our proposed conference session, one of us had attended a planning session near the end of March, where a lengthy discussion had focused on why women were not registering. Some of the planning group speculated that perhaps individual departments were not paying registration fees or providing time off to attend, incentives often available for other job related conferences. Others suggested women were not signing up because they were afraid they would be harassed about their attendance by their male colleagues and supervisors. Still others were concerned that some departments perceived the conference as a "male bashing session." Finally, a few speculated that departments might not see the merit in this event since many of the sessions focused on issues from a woman's perspective. Overall, most of their speculation centered around the organizational culture and lack of support for this type of a program.

While they had ideas about the potential hindrances to registration, the planning committee remained uncertain about why they received such a low response to their mailing. It was important to determine what was behind the poor response because funds had already been approved for another conference for women within three years. Further, the members of the planning committee were aware of credibility issues, since they had lobbied hard for support for this event. By mutual interest, we decided to survey a sample from the initial mailing list to determine why they had chosen not to attend the conference.

Methodology -- The Survey

We developed a two-page survey, adapting some items from the Deterrents to Participation Scale (DPS) (Scanlan & Darkenwald, 1984) and the generic form of the DPS (DPS-G) (Darkenwald & Valentine, 1985). Various potential deterrents to participation have been identified in the literature, for example: cost, lack of quality, family and work constraints, lack of confidence, time constraints, and lack of relevance (Darkenwald & Valentine, 1985; Scanlan & Darkenwald, 1984). Several items on the survey reflected these major deterrents.

In addition, the literature examining factors influencing employee participation in developmental activities has found that employees' perception of the work environment tends to influence development activity (Noe & Wilk, 1993). For example, manager and peer support was found to correlate positively with participation in developmental activities. Since organizational culture issues appeared to be salient, several items were created that focused on these factors.

The program planners reviewed a draft of the survey and provided recommendations for change. They insisted if the survey was not brief, response rates would be low. The final draft was comprised of 22 Likert scale items and a section for comments. The five point response scale used for the 22 items spanned 1=not important to 5=very important. A cover letter sent with the survey explained the purpose of the study. A self-addressed return envelope was included. Surveys were returned to the researchers,

rather than the program committee, to avoid concerns about anonymity of responses.

Surveys were mailed to the subset of the original list that reside in the state where the conference was to be held. This was considered to be both a reasonable sample size and the most likely group to be interested in any future events. Of a total of 304 surveys mailed, one hundred one (101) usable responses were received, yielding a return rate of 33%. Of the returns, 83 respondents completed the quantitative portion, 7 completed only those items they perceived pertained to them, and 11 completed the comments section only.

Results

Demographics: Only two demographic variables were included in the survey: field of employment and years of experience in emergency services. The majority of the individuals responding to the survey were employed in policing (52%). The remaining 48% included individuals employed in dispatch (11%), other (10%), corrections (9%), emergency medical service (5%), and fire fighting (3%). Twenty-three percent (23%) indicated they had 16-20 years experience in emergency services, 20% had 6-10 years experience, 18% had 11-15 years experience, 9% had 0-2 years experience, and 9% indicated they had over 20 years experience in the field (11% - missing cases).

Quantitative Results: The results of the survey suggest that no particular issue deterred women from attending this conference (see Table 1). The most salient issues for the respondents in this study were time (dates were inconvenient, department would not provide time off) and cost (respondent did not have the money to attend, department was not going to pay). These findings are consistent with other studies that have examined deterrents to participation in adult education activities (Blais, Duquette & Painchaud, 1989; Henry & Basile, 1994; Darkenwald & Valentine, 1985; Scanlan & Darkenwald, 1984). Also like other studies that have examined deterrents to participation, the individual item means are low, suggesting that only a few factors influenced each individual's decision to not participate in this conference (Scanlan & Darkenwald, 1984).

Intercorrelations were computed to determine if there was a relationship between how participants responded to the 22 items and their fields of employment or years of experience in emergency services. Only two items were found to correlate significantly with years of experience. An inverse correlation was found between years of experience and responses to item 6: "I though it might be a 'male bashing' conference" ($r=-.2285$, $p=.05$), meaning respondents with more experience were less likely to indicate this was a reason for not attending. Years of experience also significantly related to item 8: "The conference offered little to help me do my job ($r=.2274$, $p=.05$).

Qualitative Results: Each survey participant had the option to provide written comments in addition to the Likert scale items. Nearly 50 of the 90 respondents chose to do so. Many of the comments simply stated that other commitments prohibited the individuals from registering for the conference in question. Yet a few very pointedly expressed dissatisfaction with specific aspects of the proposed program. Although small in number, these few respondents articulated their concerns with such vigor (one even attached another sheet of typed comments) that they captured our attention. Some of those comments are included here to reveal what may be some key underlying issues. These comments focused on two main aspects of the conference: the minor, yet obvious point of including stereotypical activities as part of the agenda, and the major and apparently much more volatile issues surrounding acknowledgment of gender issues in the male dominant cultures of emergency services organizations.

Table 1: Potential Deterrents to Participation in Women in Emergency Services Conference

Variables	Mean	SD
1. Home responsibilities did not leave me enough time to attend the conference.	2.32	1.47
2. My department would not provide time off to go.	2.81	1.61
3. I did not think I would receive continuing education credit for attending.	1.39	.95
4. The program location was inconvenient.	1.40	.77
5. I perceived little value in the programs offered.	1.94	1.25
6. I thought it might be a "male bashing" conference.	1.48	.97
7. My colleagues would not approve of the conference.	1.21	.75
8. The conference offered little to help me do my job.	2.06	1.44
9. My boss did not support my attendance.	1.76	1.29
10. I forgot about it.	1.72	1.36
11. I would prefer not to go to a conference focused on women.	1.30	.80
12. I did not receive any information about the conference.	1.81	1.55
13. I was not willing to give up my free time for this activity.	2.01	1.40
14. There would be no tangible reward (i.e., career advancement) for attending.	1.75	1.24
15. I've met my requirements for continuing education this year.	1.13	.54
16. I did not have the money to attend the conference.	2.69	1.60
17. The conference did not focus enough on my speciality.	1.92	1.24
18. The department was not going to pay for this conference.	2.98	1.69
19. My attendance at this conference would be held against me.	1.38	.98
20. By attending this conference I would be separating myself from the rest of the department.	1.26	.72
21. I don't agree with emphasizing differences between men and women employees.	1.70	1.13
22. The dates of the conference were inconvenient.	2.61	1.65

1=Not Important, 5=Very Important

The stereotypical activities were a fashion show and a shopping trip scheduled during the three day conference. Admittedly, we were amazed at the inclusion of a fashion show in what was marketed as a serious content, professional event. Apparently, some of the potential participants were surprised by this choice as well. Comments included: "... I was personally very disturbed about the planned "fashion show." It was too "Miss America" for me- and bathing suits (?) P-leez! " Another wrote: "I must say that the evening activities-the fashion show and shopping trip- were a bit of a turn-off. They seemed kind of stereotypical..." Yet a third noted:

> I was really taken back when the brochure indicated this conference invited men to attend, but the social activities highlighted shopping at (a local mall). Wait a "I want to be part of the main stream minute". Many of the women would have been greatly offended had this conference been organized by men and the situation reversed.

One respondent suggested an alternative type of fashion show featuring uniforms and work related equipment that were made to fit women better than the cut down versions of men's attire often available.

The issue that brought the sharpest comments surrounded the pros and cons of the single sex focus of this conference. The comments reveal both sides of the core issue of acceptance into the mainstream culture. Those opposed to separating women and men expressed the following:

> I have been a police officer for a total of five years with two departments. I have never been treated differently by the people who know me and have worked with me. I refuse to separate myself from the men that I work with every day. These people have become some of my best friends and good sounding-boards. I believe we are all in this

job together, and we should all stick together. I have had the opportunity to get involved in many different areas of this department, because I am one of the few women who enjoy getting involved and promoting this career.

Throughout my law enforcement career, I have focused on being part of the "whole" picture. It would defeat my purpose if I now started restricting myself to a narrower point of view....I have all the rights and privileges of the other captains in my department and believe strongly it is because I have tried to accentuate the positive similarities, not amplify the differences. Events that are considered gender specific have no place in this environment. Addressing the needs of both genders in the same environment would be much more appropriate.

Other perspectives suggested different rationales for lack of response to a program focused on women:

I am the only female officer at our post, which consists of about 60 sworn officers. I try extremely hard to "down play" my minority status and never try to use it to my advantage... . I feel if I ever screamed "discrimination" or "harassment" that I would lose the respect of my fellow officers. I even look down upon other women who use their gender as a tool for advancement, or to be in the limelight. I would have enjoyed the conference, but it was at a bad time for me to go. I would have gone on my own time, without my co-worker's knowledge, for fear of retribution or harassment. I feel my co-workers respect me now, but if I were to take part in a conference aimed at women, that they may feel I was trying to start trouble.

I do believe that many female officers do not want to identify themselves with other female officers and would rather bond with male officers. I have seen this in my own department. I believe there is a subconscious class-consciousness or inferiority complex where many females feel that they are unique and can handle the job but other females can't. We are our own worst enemy. Many younger officers have no perception of what some of us went through to get hired, promoted or even to retain our jobs. In a recent Sergeants' Exam, I had the second highest score but wimped out and withdrew from the process because I did not want to go through what I went through when I first got on the department and have to "prove" myself. I'm too old, tired, and have lost the initiative.

The fashion show and shopping trip criticisms merely point out an unfortunate choice. However, the comments regarding single sex training, acknowledgment of gender differences, and acceptance into the established culture of an emergency services organization, although small in number, may represent an underlying controversy that arises in other institutions that encounter a diverse workforce. Should the prevailing culture of an organization reflect only those who make up the majority of the members? Does success for those who represent the minority require total assimilation to dominant group norms? If so, what are the costs? While some respondents to this survey clearly felt accepted and comfortable in their work environments, and saw no need for networks with other women; others just as certainly perceived they could be successful only if they followed a carefully prescribed set of rules. The former clearly saw this single sex training event as divisive; the latter may have found such a conference helpful as a support mechanism.

Discussion

Overall, time and cost were the two major deterrents to women's participation in this single sex learning activity. Despite very specific comments from a few respondents, the quantitative results did not indicate that the "women only" nature of the conference was a major reason for choosing not to attend. For example, the mean for item #11, "I would prefer not to go to a conference focused on women," was low, indicating this was not an important participation deterrent. Departmental support in terms of time off to attend and financial assistance was considered a much more salient issue. The lack of this type of support may suggest that those individuals making decisions regarding training and development resource

allocation discount single sex training efforts, perceiving them as unnecessary and viewing participation in such events as disruptive to the organization. However, an equally plausible explanation is that financial assistance and time off for any type of training and development are provided infrequently in these types of organizations. Research exploring decision makers/managers' perceptions of the usefulness of single sex learning would be helpful to program planners of these types of learning activities.

Equally useful to program planners would be a systematic investigation of why women choose to attend single sex training activities and why some organizations support and encourage such attendance. For example, does the choice vary by years of experience? Are women in certain types of organizations more likely to participate in single sex learning activities? Are women in certain professions more or less likely to participate?

While this study did not clearly demonstrate the impact of culture on single sex training participation, some of the qualitative data indicate cultural factors that may influence receptivity to such opportunities. Additionally, the comments suggest divergent perspectives on separate training which makes resolution more difficult. Further studies in gender skewed cultures may provide greater insight into the utility of single sex programs and the settings in which they might be most appropriate.

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Learning Climate and the Structure of Work

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Based upon the assumption that team-based work has a favorable learning climate, organizations tend to substitute task-structured work for team-based work. In order to test this assumption a learning climate comparison is made between 28 employees of a department with task-structured work and 17 employees of a department with team-based work. The results indicate that the team-based department has a more favorable learning climate than the task-structured department.

The concept of learning climate has originally been evolved in educational science to describe the learning environment of students in a classroom or in any other school environment (Michaud, Forgette-Giroux, & Richard, 1989; van der Sijde, Dijkstra, & Bennink, 1989). Recently, the application of the concept of learning climate to the context of labor organizations has gained increasing attention in educational research. In this context a learning climate is generally described as the workplace characteristics that are associated with employees' learning (e.g., van Biesen, 1989; Knowles, 1973; van der Krogt, 1995; Marsick & Watkins, 1990; Pedler, Burgoyne, & Boydell, 1985).

Various educational researchers assume a relationship between the structure of work and the learning climate. Van Biesen (1989) notices that problem oriented work offers more learning possibilities, both in work and in social contacts, than repetitive tasks. According to Knowles (1973) there is less motivation for self-improvement and more obstacles to learning in hierarchically structured organizations than in functionally structured organizations, the latter being characterized by interlinked groups or project task forces. Van der Krogt (1995) also assumes a relationship between the structure of work and the learning climate. In his opinion, task-structured work is related to a learning climate in which rules and procedures are dominant, whereas in team-based work the learning climate is focused more on sharing experiences with group members.

The purpose of the present study is to explore the relationship between learning climate and the structure of work. For this purpose, the Learning Climate Questionnaire (Bartram, Foster, Lindley, Brown, & Nixon, 1993) was administered to employees of a department with task-structured work and a department with team-based work in a Dutch truck factory. It was hypothesized that the team-based department would have a more favorable learning climate than the task-structured department.

Method

Participants. Employees of two departments with different types of work of a Dutch truck factory were compared. One department was characterized as employees being involved in task-structured work (TSD), whereas the other department was characterized as employees being involved in team-based work (TBD). Forty-five employees, 28 from one TSD and 17 from one TBD, participated. Sixty-nine percent were between 20 and 40 years of age. All employees were males and employed fulltime. Fifty-three percent of the employees had been employed in the truck factory for more than 10 years. The level of education of the respondents ranged from two to six years above elementary school.

Setting. The Dutch truck factory initially consisted only of task-structured departments. In 1987 the factory investigated the effect of team-based work on employees' productivity and satisfaction. For this purpose, employees with a slightly higher level of education were recruited from outside the factory.

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Task-structured department. In the TSD steel parts belonging to the cabin of a truck were pressed on machines which strongly varied in size and function. Although the tasks on the machines were mostly routine, the difficulty of these tasks differed between employees. However, most employees mastered each others' tasks and were able to substitute each other if necessary. Two employees of the department did not work on a specific machine but were in charge of quality control. They took samples and measured the steel parts to determine whether they were pressed according to given standards. Generally, the responsibility of the employees was limited to their own machine as only the manager coordinated the production process between the various machines.

Team-based department. The TBD produced large steel parts belonging to the under-carriage of the trucks. Depending upon the specific order, these steel parts were produced in different ways. Although the production could have been executed by task-structured work, the manager has given the employees the responsibility for the production process. When an order was received, the employees themselves assigned the different tasks and, thus, they organized the work themselves. Their autonomy was also extended to planning their own vacations. The major task of the manager was to solve technical and interpersonal problems. He refrained from coordinating the production process.

The Learning Climate Questionnaire. The Learning Climate Questionnaire has been developed in the United Kingdom through the collaboration of Newland Park Associates and the Employment Service (Bartram et al., 1993). It consists of 70 statements to which the respondent indicates his level of agreement on a 5-point scale. In order to prevent acquiescence, some items are formulated in a positive and some in a negative way. The Learning Climate Questionnaire comprises the following seven factors:

Management style. Measures the degree to which respondents consider their manager as being supportive and stimulating. This scale includes the following statements: "My immediate manager makes me feel like a valuable member of the team", and "If something is troubling me, my immediate manager tries to help".

Time. Measures the time pressure employees experience in their work. Examples of statements in this scale are "In some parts of the job there is not enough time to keep up with changes" and "There is no time to practise the things I need to know how to do".

Autonomy. Measures the degree to which employees are able to perform their work autonomously. Employees are asked to assess to which degree they have the opportunity to do their work in the way they prefer.

Team style. Measures the degree to which employees consider their colleagues as supportive and encouraging. Statements in this scale are "If we ask each other for help it is given", and "We accept each other's weaknesses and limitations".

Opportunities to develop. Measures the degree to which employees feel they have opportunities to contribute to the policy of their department and the opportunities employees experience to perform tasks that are unrelated to their work. This scale includes the following statements: "We have a say in how things are done here" and "If there are policy changes we have the opportunity to discuss how they will affect us".

Guidelines. Measures the availability of written guidelines in the workplace. It includes the following statements: "There is written guidance on how to do my job available for me to refer to", "There are clear guidelines on how my job should be done", and "I know where to find the information I need in my job".

Satisfaction. Measures the atmosphere of the department. Examples of statements in this scale are: "Some people here are always complaining about things" and "People tend to put each other down".

In a study by Bartram et al. (1993) Cronbach's alpha varied from .82 (for guidelines) to .92 (for management style).

Procedure To apply the Learning Climate Questionnaire in a Dutch truck factory, it was translated into Dutch. Due to the illiteracy of some employees, the Learning Climate

Questionnaire was filled out in an interview format. The interviews were all conducted by the same researcher. Whenever a respondent failed to understand a specific question, she explained the question in her own words. If a respondent, nevertheless, could still not answer the question, the answer was reported as missing. Interviews were held in a time interval of three weeks. Each interview took about an hour.

Results

Reliability A first step in the analysis was the assessment of the reliability of the questionnaire. Cronbach's alpha coefficients computed on the sample (n=45) ranged from .61 (for guidelines) to .79 (for team style).

Descriptive Statistics Means and standard deviations were computed for all seven dimensions (see Table 1). Employees of both departments had high scores on the dimension team style (with means of $\underline{M}$=4.1 and $\underline{M}$=4.5, for the TSD and TBD respectively), and low scores on the dimension satisfaction (with means of $\underline{M}$=2.5 and $\underline{M}$=3.1 for the TSD and TBD respectively). Standard deviations varied between .36 (management style, TBD) and 1.3 (autonomy, TSD).

Differences between departments A $\underline{t}$-test for independent groups was carried out to determine whether the TBD had a more favorable learning climate than the TSD by comparing the scores for both groups on the dimensions of the Learning Climate Questionnaire. Results are shown in Table 1. Because of multiple comparisons between the two departments, the Bonferroni procedure was applied (Kirk, 1995). This means that the level of significance used was set at .007 (.05/7). One-tailed testing showed statistically significant differences between the two groups on the dimensions management style, time, autonomy, opportunities to develop, and guidelines ($\underline{p}$<.007). On these dimensions the TBD had higher scores than the TSD. On the dimensions team style and satisfaction no statistically significant differences were found. Effect sizes were computed for each learning climate dimension. These varied from 0.59 (team style) to 1.47 (time). According to Cohen's criteria (1969) the effect sizes of four of the seven learning climate dimensions are large (>0.80).

Table 1. Differences on learning climate between a task-structured department and a team- based department

	Task-Structured Department			Team-based Department					
Learning Climate	M	SD	n	M	SD	n	t[a]	df	ES
Management Style	3.9	.74	28	4.6	.36	17	4.42*	41.7[b]	0.95
Time	2.7	.75	28	3.8	.71	17	4.64*	43	1.47
Autonomy	2.7	1.3	28	3.9	.84	17	3.40*	43	0.92
Team Style	4.1	.68	28	4.5	.57	17	1.84	43	0.59
Opportunities to develop	3.5	.95	28	4.1	.59	17	2.58*	43	0.63
Guidelines	3.5	.82	28	4.4	.46	17	4.78*	42.7[b]	1.10
Satisfaction	2.5	.87	28	3.1	.97	17	2.03	43	0.69

[a]T-values are determined by one-tailed testing. [b] Due to a significant difference between variances, the separate variance estimate has been used in the testing. This has consequences for the number of degrees of freedom.
*Significant t-values at .05 level, using the Bonferroni criterium.

Discussion

The results of the present study suggest that employees who work in a team-based department experience a more favorable learning climate as compared with employees who work in a task-structured department. These results are largely consistent with the literature on work characteristics and learning climate (van Biesen, 1989; Knowles, 1973; van der Krogt, 1995). However, on the dimensions team style and satisfaction no differences were found between the two departments, which is at variance with the above literature. For the dimension of team style, both departments scored considerably high (with means of $\underline{M}$=4.5 and $\underline{M}$=4.1 for the TSD and the TBD, respectively). Especially for the TSD this is a remarkable finding, because employees who perform separate tasks are not usually expected to have strong feelings of cooperation. However, this finding may be explained by the fact that employees in the TSD work in groups around one particular machine. Because it is important that the different actions on this machine are coordinated, they probably do experience strong feelings of cooperation. For the dimension of satisfaction, employees in both departments turned out to have low scores (with means of $\underline{M}$=2.5 and $\underline{M}$=3.1 for the TSD and the TBD, respectively). These results may be due to the fact that the interviews were held at a time that continuation of their employment was threatened. Because of the resulting turbulence in the organization, this dimension may not have been assessed reliably.

Some methodological shortcomings should be mentioned. First, the generalizability of the results is limited because of the modest number of participants involved. Besides, the results are difficult to generalize to other professional domains because the educational level of employees of the truck industry is generally low (i.e., two to six years above elementary school). Secondly, it is not possible to draw conclusions about a causal relationship between the structure of work and learning climate because the employees were not randomly assigned to experimental groups.

One particular threat in assessing a causal relationship between work characteristics and learning climate is the possibly confounding role of educational level. As stated, employees working in the team-based department had a higher mean level of education as compared with employees in the task-structured department. The difference in learning climate between both departments may, thus, be explained by educational level as well. This possibly confounding role of educational level was checked in a two-by-two ANOVA in which respondents were categorized into two groups according to educational level. The results showed no statistically significant effect of educational level on learning climate (for all seven scales $p<.30$). Moreover, there was no statistically significant interaction effect between educational level and department on learning climate (for all seven scales $p<.30$). It may be concluded that the difference found in learning climate between the task-structured and the team-based department cannot be explained by educational level.

The results of this study suggest the existence of a relationship between the structure of work and learning climate. They also support the recent tendency in organizations to replace task-structured work by team-based work. This study also provides insight into the strengths and weaknesses of the Learning Climate Questionnaire. This questionnaire may be considered as useful to assess the relationship between learning climate and other work factors. However, further research should be conducted into the psychometric characteristics of the Learning Climate Questionnaire.

The present study may have contributed to our knowledge about the relationship between learning climate and the structure of work. Managers and organizational educators can apply this knowledge in order to create a climate conducive to learning at the workplace. More studies are needed to examine the learning climate in a larger variety of workplaces and to explore the effects of interventions in the workplace on employees' learning.

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Factors Affecting Motivation to Use Computer-Based Training

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This study examines the relationship of five groups of variables (individual or general attitudes, situational specific attitudes, reactions, learning, and environmental factors) with motivation to transfer skills and knowledge learned in a computer-based training program. Hierarchical regression analysis produced a model which explained 60.5% of the variance in motivation. Individual attitudes and environmental variables explained most of the variance in motivation. A number of mediated relationships were suggested.

Billions of dollars are spent each year on training (Broad & Newstrom, 1992; Sadowski, 1995) in an effort to increase productivity so businesses can stay competitive in the face of fierce global competition and a rapidly changing environment (Campbell, 1988) . Training is focused on trying to change behavior or teach new behaviors to individual trainees (Goldstein & Gilliam, 1990). However, little is still known about factors that impact the trainee's decision to use the training. From a cognitive perspective of motivation, individuals make behavioral choices based on a combination of factors (Vroom, 1964). Therefore, understanding the factors that influence individuals' choices, in particular their choice to use or not use training, would be valuable in determining how to motivate trainees to make behavioral choices that benefit the organization.

This study focuses on how individual and general attitudes, training situation specific attitudes, reaction, learning and environmental factors affect trainees' motivation to use computer-based training in an industrial setting. Computer-based training in an industrial setting has had relatively little attention in the training and development literature. Due to its cost effectiveness and its ability to meet the time demands of shift workers, computer-based training has become a popular delivery mechanism in a number of industries facing increased training requirements resulting from federal mandates.

The outcomes of this kind of research has important theoretical and practical implications. From a theoretical standpoint, a test of key components, mainly outside the training design, in a more comprehensive conceptual framework of training effectiveness gives guidance to future research and theory testing efforts. From a practical standpoint, a better understanding of why training is effective for some individuals and less effective for others can help focus and improve interventions, be useful in guiding needs assessments, designing as well as improving existing training programs, and designing more thorough evaluations. More effective interventions should lead to greater learning and transfer behavior which in turn should lead to improved performance and increased profits.

The primary purpose of this study was to empirically and systematically examine a computer-based training program in a field setting to determine the influence of selected variables that are believed to affect trainees' motivation to transfer training. Eleven specific hypotheses were examined which addressed two general research questions (shortened here for space reasons):

Research Question 1: What are the correlations between each of the independent variables and the dependent variable, motivation to transfer?

Research Question 2: What proportion of the variance in motivation is explained by five sets of these independent variables?

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Background

Noe and Schmit (1986) expanded the Wexley and Latham (1981) trainability equation to include an environmental component [Trainability = *f*(Ability, Motivation, Environmental Favorability)]. This formula suggests that for training to be the most effective a trainee should have the ability and motivation to learn and use the knowledge and skills taught in training, and that the environment to which they return must be supportive of the use of the training. Although Noe and Schmit's (1986) formula seems logical, a dynamic model a feedback loop should also enter into the equation. Trainees who have previous experience with training programs within the organization may develop perceptions of the environmental influences before new training programs are instituted. These perceptions of environmental factors may influence motivation to learn and motivation to transfer (Baldwin & Ford, 1988; Cohen, 1990; Noe, 1986).

In situations where participants are current employees and not newly hired recruits it can be reasoned that the information to be learned in the training program is within the ability level of the trainees. Therefore, in situations where ability is not a great concern, the question becomes how to motivate trainees to learn and use what they have learned back on the job and what the role of perceived organizational favorability play in influencing motivation to transfer. Holton (1996) developed a research and measurement model for HRD evaluation that shows several factors influencing motivation to transfer, and motivation to transfer in turn influencing individual performance. According to Noe (1986), trainees' attitudes, interests, values, and expectations can affect training effectiveness. Noe hypothesized that motivation to transfer moderates the relationship between learning and behavior change and is influenced by perceptions of work group support and task constraints.

Definitions

Motivation to Transfer Motivation was defined by Kanfer and Ackerman (1989) as "the direction of attentional effort, the proportional of total attentional effort directed to the task (intensity), and the extent to which attentional effort toward the task is maintained over time (persistence)" (p.661). Positive transfer of training is the application of the knowledge, skills, and attitudes gained in a training context to the trainee's job (Wexley & Latham, 1981). Therefore, motivation to transfer is the directional, intensity and persistency of effort toward utilizing the skills and knowledge learned in a training atmosphere to the real world work situation. When motivation to transfer is low trainees are less likely to use the skills and knowledge learned in training in their work setting.

Individual Attitudes Individual attitudes are attitudes that the trainee brings to the training program with him/her. They are attitudes that are not directly related to the training program but that can influence both motivation to learn and motivation to transfer. The individual attitudes included in this study were love of learning, internal work motivation, and organizational commitment.

Situational Variables Situational variables influence motivation to learn under a set of specific circumstances. Computer confidence was included as a situational variable because computer-based training was the delivery method in this study. Training attitudes was also included because favorable or unfavorable attitudes may have developed from past experience in similar training, management attitudes about the training, or peer group influences.

Reactions to Training Kirkpatrick (1994) called trainee reaction to training a measure of customer satisfaction. Once the trainee has experienced the training, his/her attitudes may be altered. Two measures are included in reaction, reaction to the learning environment and reaction to content validity.

Learning For the trainee to be motivated to transfer learning, learning must have occurred. The purpose of the "learning experience" is for the trainee to gain skills and knowledge and/or their to be a change in attitudes and beliefs (Mager, 1984). Learning average on computer-based tests was used as an independent variable in this study.

Environmental Factors Environmental factors refer to the organizational climate and

constraints or aids that a trainee must deal with when they return to the job after completing a training program. Environmental factors in this study included supervisor support, supervisor sanctions, peer support and opportunity to use the training.

Methodology

This study was part of a larger project undertaken to evaluate a CBT training program.

Subjects Eighty-eight trainees participating in a CBT program from two units of a large petrochemical company in Louisiana completed the motivation to transfer measure. However, due to missing data the usable sample size was 74.

Data Collection Two instruments (Reaction and Transfer Climate) were developed for the larger study. Four other instruments used were previously developed instruments: Computer Attitudes (Loyd & Gressard, 1984); Self-Directed Learning Readiness Scale (Guglielmino,1977/78); Job Attitudes, which was a combination of 5 scales (Hackman & Lawler, 1971; Hackman & Oldham, 1975; Mowday, Steers, & Porter, 1979), and the START instrument (Weinstein, Palmer, Hanson, Dierking, McCann, Soper, & Nath, 1994). All these instruments had a 5-point answer scale, (1) Strongly disagree to (5) Strongly agree. The instruments were hand delivered in two separate administrations and collected immediately after completion.

Measures The instruments were factor analyzed producing subscales for each instrument. Only those subscales applicable to this study were used in the analysis. Learning was measured by averaging tests scores recorded by the computer on test at the end of each lesson.

Data Analysis Bivariate correlation analysis was used to address research question #1. Knowledge of the bivariate relationships between each of the independent variables and the dependent variable aided in the interpretation of the hierarchical regression results and gave a broader picture of the factors that contributed to motivation to transfer.

Hierarchical multiple regression was used to partition the variance in motivation to transfer that was accounted for by each successive set of variables over and above the influence of the preceding set(s). Thus, the unique portion of the total variance accounted for by each set of variables was estimated by examining the R^2 series and the change in variance explained from one set to another (Cohen & Cohen, 1983). When used as an exploratory method of examining relationships between variables, hierarchical regression can suggest the presence of mediated relationships between independent variables and the dependent variable. If the addition of specified causally "later" variables to the regression model results in coefficients for the causally "early" variables becoming non-significant, a mediated relationship between the "early", "later", and outcome variables is suggested (James & Brett, 1984). The order of entry was based on the conceptual model from Holton's (1996) HRD Evaluation Research and Measurement Model and the logical sequence of these variables or sets of variables as they appear in the training situation. The order of entry (see Figure 1) was as follows: (1) love of learning, internal work motivation, and organizational commitment; (2) computer confidence and attitudes toward training; (3) reaction to learning environment and reaction to content validity; (4) learning; and (5) supervisor support, supervisor sanctions, peer support, and opportunity to use.

Results

Research Question 1: Bivariate correlation analysis revealed that the largest correlations were found for opportunity to perform (r=.58), peer support (r=.54), organizational commitment (r=.41), supervisor sanctions (-.396), and computer confidence (.391). Only two variables, internal work motivation and learning, were not correlated with motivation to transfer.

Research Question 2: Hierarchical regression analysis results (see Table 1) indicated:

1) In step 1 of the regression analysis the individual/general attitudes (love of learning, organizational commitment, and internal work motivation) were entered as a group. The model was

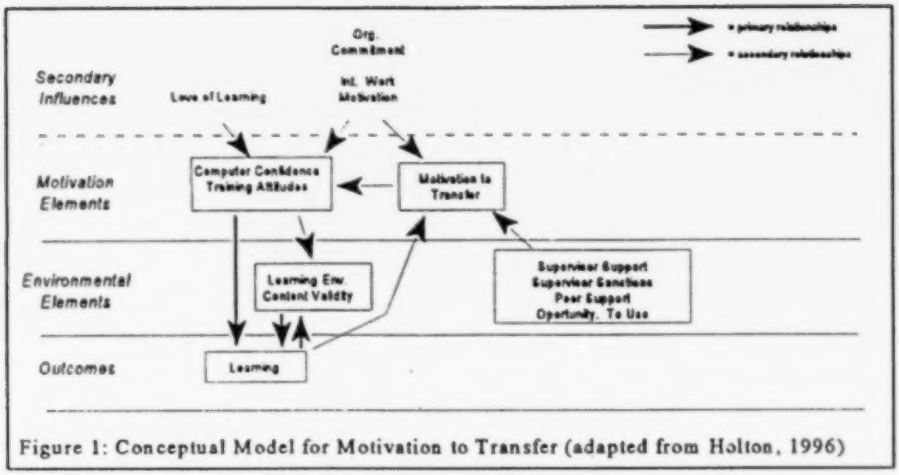

Figure 1: Conceptual Model for Motivation to Transfer (adapted from Holton, 1996)

significant ($p < .001$) with an R^2 of .198, indicating that almost 20% of the variance in motivationto transfer was explained by these attitudes. Only organizational commitment was a significant predictor ($p < .01$).

2) Step 2 of the regression analysis added the training specific attitudes (computer confidence and training attitudes) to the model. The model was significant ($p<.01$) and the R^2 increased slightly to .262. However, the increase was not significant. In Model 2 neither training attitudes nor computer confidence were significant predictors of motivation to transfer. Organizational commitment remained a significant predictor.

3) Step 3 of the regression analysis added the reaction variables to the model. The model was significant ($p < .001$) with an R^2 of .317, which was a slight but non-significant increase over the previous model. Reaction to the learning environment was a significant predictor ($p<.05$) . Organizational commitment remained a significant predictor ($p<.05$) and training attitudes approached significance ($p=.05$).

4) Step 4 of the regression analysis added learning average to the model. The model remained significant ($p < .001$), with a slight but non-significant increase in R^2 ($R^2=.341$). Learning was not a significant predictor of motivation to transfer. Reaction to the learning environment and reaction to content validity each were significant predictors of motivation to transfer ($p<.05$).

5) Step 5 of the regression analysis added the environmental variables (opportunity to use, peer support, supervisor sanctions, supervisor support) . The final model was significant ($p<.001$). With the addition of the environmental variables R^2 increased to .605, which was a significant increase ($p < .001$) over the previous model. The significant predictor variables in the final model were computer confidence , opportunity to use, peer support ($p<.01$ each) and supervisor sanctions ($p < .05$). Supervisor support was not a significant predictor of motivation to transfer.

Discussion

Although the importance of motivation in work organizations has long been recognized and studied (Lawler, 1994; Steers & Porter, 1991) little research has been done to provide a better understanding of trainees' motivation to transfer what they gained in training to their work setting. Noe (1986) proposed that a better understanding of how to increase the likelihood that behavior changes and performance improvement result from training participation would be gained by determining the specific individual characteristics that influence training effectiveness. Based on this proposition and prior research and theory, Noe proposed a model of motivational influences on training effectiveness. Extending some elements of Noe's model, Holton (1996) developed the HRD Evaluation Research and Measurement Model. Holton's model provides a conceptualization of the

Table 1 - Results of Hierarchical Regression Analysis for Motivation to Transfer

Variable	β	R^2	Adj. R^2	F/df	ΔR^2	F/df
Model 1		.198	.164	5.771*** (3,70)		
Org. Commitment	.412**					
Love of Learning	.196					
Internal Work Mot.	-.194					
Model 2		.262	.208	4.832*** (5,68)	.064	2.943 (2, 68)
Org. Commitment	.366**					
Love of Learning	.007					
Internal Work Mot.	-.262					
Training Attitudes	.205					
Computer Confid.	.219					
Model 3		.317	.244	4.367*** (7, 66)	.054	2.627 (2, 66)
Org. Commitment	.272*					
Love of Learning	.005					
Internal Work Mot.	-.213					
Training Attitudes	.224*					
Computer Confid.	.195					
Reaction-Lrn. Env.	.192*					
Reaction-Cont. Val.	.169					
Model 4		.341	.260	4.204*** (8, 65)	.024	2.408 (1, 65)
Org. Commitment	.247					
Love of Learning	.021					
Internal Work Mot.	-.214					
Training Attitudes	.215					
Computer Confid.	.191					
Reaction-Lrn. Env.	.231*					
Reaction-Cont. Val.	.201*					
Learning Avg.	.164					
Model 5		.605	.527	7.781*** (12, 61)	.264	10.184*** (4, 61)
Org. Commitment	.079					
Love of Learning	-.078					
Internal Work Mot.	-.188					
Training Attitudes	.052					
Computer Confid.	.358**					
Reaction-Lrn. Env.	.118					
Reaction-Cont. Val.	.077					
Learning Avg.	.098					
Opportunity to Use	.379***					
Peer Support	.315**					
Superv. Sanctions	-.179*					
Superv. Support	-.115					

*p≤ 05 (one-tailed) **p≤ .01 (one-tailed) ***p≤ .001 (one-tailed) level

holistic approach to determining the effectiveness of training program. Holton's model is the first attempt to comprehensively specify antecedent relationships, both direct and indirect, leading to motivation to transfer. Noe's model only specified environmental favorability as influencing motivation to transfer. The most important finding to emerge in this study was that environmental factors (opportunity to use, peer support, supervisor sanctions, and supervisor support) explained a large amount of variance in motivation to transfer. The addition of this group

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of variables in the fifth and final step of the hierarchical regression increased the R^2 significantly, explaining an additional 26.4% of the variance in motivation to transfer over the previous model (R^2=.605, adjusted R^2=.527). This finding is consistent with research linking environmental influences to transferring training and subsequent changes performance (Baumgartel,, Reynolds, & Pathan.,1984; Rouiller & Goldstein, 1993; Tracey, Tannenbaum, & Kavanagh, 1995; and Xiao, 1996). The present study extends these findings by showing that environmental variables have a broader influence affecting not only post-training behavior but motivation to transfer as well.

In the final model, the only environmental variables that failed to emerge as a significant predictor of motivation to transfer was supervisor support. The standardized betas in the final model indicated that opportunity to use (β=.379) had the strongest influence on motivation followed by computer confidence (β=.358), peer support (β=.315), and supervisory sanctions (β= -.179). Supervisor support was a non-significant predictor with (B= -.115). Supervisor support was significantly correlated with motivation to transfer (r=.397) although not as strongly as opportunity to use and peer support (r=.580 and .544 respectively). In addition, supervisor support was significantly correlated with the other 3 environmental variables entered simultaneously with it in the regression analysis. It is possible that little unique variance was left to be explained by supervisor support after accounting for the influence of the other environmental variables. The fact that peer support had a significant influence and supervisor support did not may be a function of the cohesiveness of the work group in this industrial setting.

It is interesting to note that none of the predictor sets entered in the regression model after organizational commitment (step 1) explained significant increments in variance until the environmental variables entered. Thus, neither situation specific attitudes (computer confidence and training attitudes), learning, or reactions to training (reaction to the learning environment and reaction to content validity) explained significant increments in motivation to transfer variance. It appears that motivation to transfer is largely a product of organizational commitment and transfer environment.

The pattern of changes in significant predictor variables in the regression models suggests the possibility of certain relationships. First, organizational commitment remained a significant predictor, though with declining influence, until the reaction variables entered the model. This suggests that the reaction variables and situational variables (e.g. training attitudes) together fully mediate the relationship between organizational commitment and motivation to transfer. This follows logically because trainees enter training with some level of commitment based on their basic attitude toward the organization, which is then altered based on their specific attitude toward the training and their reaction to the training itself. However, with the addition of environmental variables, the situational attitudes and reaction to training became non-significant predictors, suggesting that environmental variables fully mediate these training specific variables. These results point to the possibility that motivation to transfer is a product of basic commitment to the organization, mediated by attitudes toward and reactions to the specific training, which is further mediated by the transfer environment, specifically opportunity to use, peer support and supervisor sanctions.

The learning variable was not significantly correlated with motivation to transfer and it was not a significant predictor variable in the regression analysis. The lack of findings related to the learning variable may be a function of the way the learning variable was measured. Although the learning measure was based on tests created by subject matter experts, there was no assurance that tests were comprehensive or representative measures of the learning that took place during the training. In addition the learning measure was range restricted. The trainees were allowed to take the test as many times as needed to satisfy the 80% correct criterion for the mandated certification. Therefore, there was little variability in the learning score (mean=94.21, SD=2.30). Due to the unreliability of the learning measure the findings regarding the mediating role of learning, as well as, its direct effect on motivation to transfer are suspect.

Computer confidence did not follow the expected path of influence. Instead of being a significant predictor in the model when first entered and then becoming a non-significant predictor after the learning variable was entered (due to the mediating influence of the learning variable), as

was expected, computer confidence did not become a significant predictor of motivation to transfer until the final model with the entry of the environmental variables. This indicates that computer confidence may have a more direct influence on motivation to transfer than originally thought. One possible explanation for the impact of environmental variables on computer confidence's influence may be found in the concept of self-efficacy, one's belief in one's capability to perform a specific task (Gist, 1967). Bandura (1977) proposed that self-efficacy can be gained by vicarious experience (watching others model the desired behavior) and verbal persuasion (being led by others into believing they can perform a task). Computer confidence may be strengthened with the addition of the peer support variable through the modeling component of self-efficacy and/or the supervisor support variable via verbal persuasion.

Taken together these findings lend a measure of support to Holton's comprehensive model of training evaluation. The findings suggest that individual attitudes and personality characteristics can influence a person's motivation to transfer training, as proposed by Holton and suggested by Noe (1986). Support was also found for a direct influence of transfer climate on motivation to transfer. The use of hierarchical regression allowed the influence of "early " entry variables (e.g., organizational commitment) to be seen and gave indications of possible moderated and mediated relationships (see James & Brett, 1984). These findings point to the need for examining training from a process point of view, looking at antecedents to key variables and outcomes of the training process through comprehensive training models.

The findings have several implications:

1) Before training design begins needs assessments should be conducted that incorporate measures of variables that may influence motivation to learn and motivation to transfer training, such as organizational commitment, love of learning, and training attitudes. In addition the needs assessment can give some assurance of content validity.

2) The findings related to the influence of computer confidence on motivation to transfer, suggest providing trainees with an opportunity to building confidence in their computer skills may increase motivation to transfer when computers are used as the delivery method. This finding points to the need for further research to determine if user confidence needs to be established when other new methods of delivery are introduced.

3) Environmental factors were found to have strong influences on motivation to transfer and to possibly to mediate the effect of the reaction variables. Care should be taken provide the necessary information, tools, and resources , as well as to minimize constraints to the use of performing on the job as taught in training. Supervisor sanctions had a negative influence and peer support had a positive influence on motivation to transfer; therefore, care should be taken to gain support for training both from trainees and supervisors. Reliable measures of transfer climate need to be developed to assess the favorability of the transfer climate within organizations. Additionally, further research needs to be done to determine how group dynamics or cohesiveness effects the roles of supervisor and peer support on motivation to transfer.

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